

# THE IDENTIFICATION OF INDIAN BUTTERFLIES

BY

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(Continued from page 446 of this Volume)

## Part XI

(With a Plate)

### 1. 89. *Zela*. The Redeye Palmers.

Above dark brown with white or pale yellow hyaline spots on F. Uph unmarked, cilia yellow, broadly so at tornus.

1 (2) ♂ upf with a broken black seam from mid v1 to just after base 3, where it meets a small glandular patch at base 3, angled at v2; uph disc clothed long hairs. Upf single lower cell spot in ♂, double in ♀, oblique spot mid 2, spot in 3 and apical in 6. Unf dark brown, costa overlaid dark ochreous scales and dorsum in ♀ pale brown, in ♂ overlaid centrally pale ochreous scales. Unh chestnut brown, basally paler, a pale yellow spot end cell.

α. Larger. Upf and unf outwardly conspicuously paler.

*zeus optimus*, Fruh. (46-47). The Redeye Palmer. Assam. Tavoy. VR.

β. Smaller. Upf and unf not paler outwardly. Unf unmarked.

*zeus zeus*, DeN. (44-46). Sumatra, Pulo Laut, Borneo, Mindoro.

2 (1) ♂ upf no brand; uph a conspicuous tuft of brown hairs from near base cell overlying cell; the cell H unusually short= $\frac{1}{2}$  wing and lower angle bent up at origin of v3 at right angles to v6, v4 arising half-way between, no trace of v5, v2 opposite v8; F dorsum bowed; unf dorsum and uph costa polished. Above brown, white hyaline spot near base 3 and a narrow irregular spot below it in 2. Below paler, dev F and H marked pale yellow and apex F paler.

*zenon*, DeN. (45-47). The Tufted Redeye Palmer. Borneo, Pulo Laut. VR.

### 1. 90. *Acerbas*. The White Palmers. (Plate 32.)

Above dark down with white hyaline spots F and a white central band H; F comparatively small spots in 2 and 3 and apical in 6-8, no spot in 1. H lobed and excavated at v1 and tornal cilia white. Unh broad white central band continuous from mid dorsum to costa before apex.

1 (2a) Unh white band connected broadly to dorsum in space 3. Upf no cell spot and unf no spot in 1. Uph white band to v4. Unh white band silvery. Body white below, dark brown above.

\* *anthea*, Hew. (30-43). The white Palmer. Dawnas to S. Burma, Siam, Malay Peninsular, and Islands. (= *tagiadoides*, Fruh, *ciliatus*, But). R.

2a (1) Unh white band not connected to termen.

2 (3) Unf single upper spot in cell immediately over the spot in 2. Unh band dull white. Uph white band to v6. Unf large white spot in 1 in ♀. Body whitish above, striped below.

α. Uph white band illdefined anteriorly. Below no purple wash. Unh white band uniform, contracted at costa.

*duris duris*, Dist. (38-48). The Dull White Palmer. Borneo, Pulo Laut, Sumatra. R.

β. Uph white band sharply defined. Below purple wash over the dark areas, especially at apex F. Unh white band yellow in 7 and 8, not contracted at costa.

*duris duris*, Mab. Philippines. R. (= *mabillei*, Stg).

3 (2) Upf 2 spots in cell well behind the spot in 2. Unh band glistening white, very broad. Uph ♂ white band only to v1, thence obscurely whitish to v4; in ♀ white band to v4. Body white above and below. Unf mid dorsum whitish.

\* *nitidifasciata*, Elwes. (48-50). The Silver Palmer. Dawnas to S. Burma, Selangor, Borneo, Labuan. R.

† *albimedia*, Joicey and Talbot is a very distinct species from Dutch New Guinea).

**I. 91. Zea.** The Silver and Yellow Palmer.

Above dark brown. Upf prominent yellow separate hyaline spots; across cell from origin of v3; in  $2\frac{1}{4}$  along v2, in  $3\frac{1}{2}$  along v3. Uph costa before apex whitish. Unh dark brown with a very broad silver band from mid v1 to costa behind apex, 5 mm. wide.

*mytheca*, Hew. (48). Victoria Point, S. Burma, Malay Peninsular, Sumatra and Borneo. VR.

**I. 92. Eetion.** The Whitespot Palmer.

Above dark brown with hyaline spots F and H; upf with an upper cell spot, large spot in 2 vertically below it, small spots in 1, 3 and 4, apical dots in 6-8 and sometimes 2 dots in 5. Uph a transverse row of hyaline white spots separated by veins in 1-4; dorsum dull whitish. Unh basal area to v8 shining white from the base to the discal spots.

*elia*, Hew. (50). S. Mergui, VR. Malay Peninsular, Sumatra, Borneo. (= *eburus*, Plotz; *ayankara* and *magniplaga*, Fruh.)

**I. 93. Unkana.** The Hoary Palmer. (Plate 32.)

1 (2) Above ♂ dark brown, ♀ black. Upf large hyaline spots, pale yellow in ♂ and white in ♀; in cell behind origin of v3, in  $3\frac{1}{2}$  along v4 and in 2 midway between; subapical spots in 4 and 5 near margin and apical in 6-8. Uph plain in ♂, in ♀ lower discal area to base and dorsum white. Unf ♂ apex broadly paler, veins black, some purple white scales and violet washed; in ♀ large whitish suffused spots before termen in 3, 4 and 5. Unh in ♂ dark brown with obscure purple wash, veins black, whitish central area extending to base 7, obscurely paler between veins near termen; ♀ with a broad transverse white area crossed by black veins from base to below apex.

\* *atlinā*, Hew. (64-72). The Hoary Palmer. Bassein to S. Burma, Malay Peninsular and Islands. NR. (= *batara*, Dist.; *latreillei*, Fd.; *cruda*, HS.; *anitta*, Plotz. The Philippine race is *mabillei*, Stg. = *palawana* and *mindanensis*, Fruh.)

2 (1) Above dark brown with large conjoined bright yellow hyaline spots on F, forming a broad central band from 1-3 and cell, apical spots in 6-7. Unf lower part of spot in 1 whitish and unh margin broadly paler.

*harmachis*, Hew. (53-55). The Orange Palmer. Malay Peninsular, Sumatra, Banka. VR. (= *staudingeri*, Dist.)

**I. 94. Hidari.** The Palmers. (Plate 32.)

1 (2a). Upf with large conjoined hyaline yellow spots as in *harmachis*, no apical spots. ♂ upf a seam from mid 1 to base 4. Unf apex grey powdered and unh 2 grey bands as in *Gangara thyrasis*. Antennæ yellow banded below club.

*ozias*, Hew. (54). The Javan Palmer, Java. VR.

2a (1) Upf hyaline spots on F pale yellow, well separated; spot across cell, in 2, 3, semi-hyaline spot in 1 against v1, apical spot in 6 only. No ♂ brand.

2 (3.4). Upf spot in cell with its centre against the origin of v3; spot in cell  $\frac{1}{4}$  along v4; spot in 2 not reaching origin of v3, well separated from cell spot, its inner edge in line with the centre or outer edge of the cell spot. Below dark brown, costa and apex F and all H pale brown with a faint purple wash; some rather obscure small dark spots about apex F and discal spots in 1-6 on H as well as a pale yellow spot unh in cell under the origin of v7.

\* *irava*, M. (54-58). The Greasy Palmer. Burma, Malay Peninsular and Islands. NR. (= *hyopoea*, Hew; *thrax*, Hub in errore).

3 (2-4). Above as *irava*. Below pale yellow, unh evenly striated, a brown streak near costa and near dorsum.

*bhawani*, DeN. (56). The Veined Palmer. Arracan Coast. VR.

4 (2.3). Upf discal spot in 2 shifted in to the origin of v3, joining cell spot. Unh spot in cell white, smaller. Spot in 1 F more upright and diffused below. Below darker, dark spots obscure or absent.

*doesoena*, Martin. (55-58). The Sumatran Palmer. Sumatra. VR.

**I. 95. Pirdana.** The Green Palmers. (Plate 32.)

Above unmarked, no hyaline spots.

1a (3). Antennæ plain black. ♂ above dark brown; ♀ with basal  $\frac{1}{2}$  F and  $\frac{2}{4}$  H dark metallic green.

**I. 95. Pirdana.**—(contd.)

1 (2). Below dark brown, veins broadly green on costa and apex F and all H; dorsum F pale brown in ♂ whitish in ♀. Uph tornus narrowly orange in ♂, broadly so in ♀.

\* *hyela*, Hew. (40-55). The Green striped Palmer, Assam to Burma. R. S. China, Hainan, Siam, Malay Peninsular and Islands, Palawan. (= *rudolphii*, El. and DeN.; *scanda*, Fruh.)

2 (1). Below uniform rather dull dark green, unstriped, dorsum F pale and space 1 F and H purple. Uph tornus narrowly orange.

*distanti*, Stg. (50). The Plain Green Palmer. Karens to S. Burma, R. Malay Peninsular, Sumatra, Nias, Borneo and Java (= *niasica*, Fruh; *parona*, DeN. *ismene*, Fd. = *sargon*, Mab. is an allied species with a dark green underside and pale veins from the Celebes).

3 (1a.) Antennæ shaft white above to base club and club white banded before apiculus. ♂ above dark brown, bases shining metallic green, elsewhere purple washed. Below as *distanti*. Uph ternal orange area broad, reaching v4.

*albicornis*, El. (50). The Albicorn Green Palmer. Borneo. VR. (Allied species are—*tiacellia*, Hew, Aru and New Guinea—*albidiscus*, Joicey and Talbot, Schouten Is. New Guinea).

**I. 96. Creteus.** The Nonsuch Palmer.

Above very dark brown, ochreous hairs at bases and on body and dorsum F; small pale yellow white hyaline spots F and H. Upf 2 spots in cell, spots in 1, 2, 3 and apical 6-8 uph spot in cell, 2, 3, 6 and mid 7, ternal cilia broad yellow terminal border from dorsum to v3; un♀ terminal yellow border from tornus to just above 4 and angled inwards in 2. ♀ spots above larger.

a. Unh yellow border comparatively narrow.

*cyrina parca*, DeN. (46-48). Assam. VR.

β. Unh yellow border considerably broader.

*cyrina cyrina*, Hew. Borneo. (= *meleagrina*, Stg.).

**I. 97. Gehenna.** The Swollen Aces. (Plate 52.)

Above dark brown with pale yellow spots on F; 2 small spots in cell (upper may be absent or minute), oblique narrow spot in 2 immediately under cell spot, small spot in 2, 3 and apical spot in 6. In ♀ spots are larger, spot in 2 is quadrate, small spots in 4 and 7 and non-hyaline spot in 1. Unf dorsum outer half white in ♀.

1 (2). Unh unmarked. Below dark brown, costa F and all H overlaid sparse yellow scales. H scv. and v8 hair-pinwise.

*greæ*, DeN. (35). The Plain Swollen Ace. Malay Peninsular (Bukit Tanga), Sumatra. VR.

2 (1). Unh marked with a series of small dark discal spots. H v8 and scv normal.

a. Below costa and apex F and all H overlaid ochreous green scales, leaving on H very obscure dark discal spots in 1-6 and cell; in ♀ the spot in 2 is white. ♂ uph greenish hairs on disc.

\* *abima dawna*, nov. (35). The Spotted Swollen Ace. Dawnas to Mergui. VR.

β. Below clothed greyish yellow scales; unh with prominent dark discal spots in 1-6 increasing in size posteriorly and a spot in cell.

*abima angulifera*, El. Mindoro. VR.

γ. Upf cell spots conjoined and above clothed ochreous hairs; unh with 5 ill-defined brown spots.

*abima abima*, Hew. Macassar. Celebes.

**I. 98. Pithauria.** The Straw Aces. (Plate 32.)

Above dark brown; pale yellow (♀ white) spots on F, double in cell, mid 2 in 3 and apical 6-7 (rarely 8); the spots in the ♂ of the first 2 species may be much reduced or entirely absent, especially those in the cell, but are prominent below.

1a (3). Unh no prominent pale spots and no brand in ♂.

1 (2). ♂ base and dorsum upf and all H except for the broad and dark border clothed straw coloured hairs, dense on H. Unf area mid dorsum to cell and v2 pale yellow. Below brown, apex and costa F and all H clothed greyish ochreous scales; obscure indications of spots unh,

I. 98. *Pithauria*.—(contd.)

*stramineipennis*, WM. (44-50). The Light Straw Ace. Sikkim to Burma (Tavoy), W. China, Malay Peninsula, Borneo, Sumatra. NR.

2 (1). ♂ darker, clothing of greenish hairs above and ochreous scales below. Unf no pale area mid dorsum; unh pattern not quite so obscure.

*murdava*, M. (36-50). The Dark Straw Ace. Sikkim to Burma. Malay Peninsula, Borneo. NR.

3 (1a). ♂ with brand upf. Above ♂ base and dorsum F and all H except costa clothed greenish hairs. Below dark brown costa and apex F and all H closely overlaid golden ochreous scales; unh small pale yellow spots in 2, 3, 6 and base 7; may be dots in 4, 5 and 1. ♀ unf small white spot in 1 against v1 and ternal spot in 1; unh chestnut brown with large silvery white conjoined discal spots in 1-5, where it joins a broad silver streak reaching to base 6, above which there is another silver streak filling most of 7, also a silver spot in 1 under cell the markings unh are very variable and sometimes the spots are as small as in the ♂.

\* *marsena*, Hew. (44-50). The Branded Straw Ace. Assam to Burma, Malay Peninsular, Tonkin, Sumatra, Nias, Java and Borneo. NR. (= *aitchisoni*, WM. and DeN.; *glauca*, Stg.; *uma*, DeN.; *ornata*, Fd.; *subornata*, Ploz.). (The ♀♀ of these 3 species appear to be extremely rare).

I. 99. *Halpe*. The Aces. (Plate 32.)

Above dark brown; upf normally 2 cell spots, 2 discal (2 and 3), 3 apical (6-8); cell spots may be conjoined or one or both may be absent and the apical spot in 8 is often absent (*hieron* is spotless). ♀ usually has a non-hyaline spot in 1 (present in ♂ *masoni*); spots white to golden. Uph unspotted (except *submacula*), but there may be a yellow patch on the disc (*decorata*, *honorei* and *masoni*) or more usually dull ochreous hairs. Below dark brown, costa and apex unf and all unh overlaid differently coloured scales; unf apex may be spotted; unh may be plain, marked with dark or pale spots or with a pattern. The ♂ brand is missing in *honorei*, *masoni*, *astigmata* and *hieron*; it may be just a seam from v1 to base 3 or consist of 2 whitish pouches, v1 may be distorted and v2 bent up.

1a (27a). Upf (or at any rate unf) either 2 cell spots present or upper one is absent (individuals of *gupta* and the ♂ of *decorata* are aberrant).

1b (5a). Upf cell spots immediately over the spot in 2. Unf mid dorsum pale.

**Separata Group.**

1c (3a). Unh and apex unf unmarked, clothed dense dark ochreous scales. Upf cell spots conjoined.

1 (2). Above cilia prominently white, chequered brown at ends of veins. Unh olive ochreous.

*separata*, M. (35-57). The Chequered Ace. Kumaon to Manipur. R.

2 (1). Above cilia brown, very obscurely chequered. Unh dark ochreous.

\* *grahami*, nov. (33-36). Graham's Ace. Assam, Manipur. R.

9a (1c). Unh marked.

3 (4). Unh yellow, small black discal spots in 2, 3 and 7, upf cell spots usually conjoined.

*subflava*, Leech. (29-32). The Chinese Yellow Ace. W. China.

4 (3). Unh dark purple brown, with an irregular white basal area, extending to centre of wing. F cell spots separate.

*hyrtacus*, DeN. (32-36). The White-banded Ace. Coorg, N. Kanara. VR.

5a (1b). Upf cell spots well behind the spot in 2.

5 (6a). Unh veins conspicuously pale; chequered irregularly with dark brown spots on a whitish ground, discal spot in 4-5 being very large. Palpi white below. F cell spots separate. Unf whitish streak mid dorsum.

**Albipectus Group.**

*albipectus*, DeN. (28-30). The Silverbreast Ace. N. Shan States to S. Burma. NR.

6a (5). Unh veins never pale.

6b (19a. 26). Unh unmarked or with pale streaks or spots; not with dark spots nor with a pale continuous band.

6c (14a). Cilia not chequered at ends veins uph.

## I. 99. Halpe.—(contd.)

## Varia Group.

6a (9a. 13). Cilia uph bright ochreous throughout. ♂ upf brand consists of 2 whitish pouches.

6 (7. 8). Unh unmarked, overlaid greenish ochreous scales. Upf spots yellow, cell spot double.

*aina*, DeN. (36-38). The Garhwal Ace. Garhwal to Assam. R.

7 (6. 8). Unh densely overlaid ochreous brown scales; silver dash in 2, long streak in 3, obscure spot in 4, very long streak in 6. Unf apex with submarginal yellow spots. Upf spots prominent, cell spot double.

*bivittia*, Ob. (33). The Silverstreak Ace. W. China, E. Thibet. R. (= *albivittia*, Ob.).

8 (6. 7). Unh ferruginous brown, very small white discal spots in 2 and 3, obscure spot in 6 and 2 small spots in 1. Upf spots small, cell spots separate.

*sitala*, DeN. (37). The Tamil Ace. Nilgiris and Animalais. VR.

9a (6d. 13). Uph cilia white or very pale yellowish.

9b (11a). Unh whitish discal spots in 2, 3 and 6; overlaid greenish ochreous scales. Upf spots white.

9 (10). Unh veins not dark; spots obscure. ♂ brand as in *sitala* group. Upf spots may be absent, but show unf.

*gupta*, DeN. (36-40). The Olive Ace. Garhwal to N. Burma (Bernardmyo), W. China. R. (= *caenis*, Leech and *fusca*, Elwes).

10 (9). Unh veins prominently black; spots very prominent. Upf upper cell spot often absent.

*varia*, Murray. (34). The Japanese Ace. Japan. NR.

11a. (9b). Unh marked with more spots than in 2, 3 and 6. Upf cell spots usually conjoined.

11 (12). Of small size with rounded wings. Unh overlaid ochreous brown scales; very obscure series of discal yellow spots in 2, 3 and 6 and a post-discal series in 1-5. F v2 much bent up at origin. Palpi more correct.

*blanchardi*, Mab. (30). Blanchard's Ace. W. China.

12 (11). Larger, wings more pointed. Unh greenish ochreous, obscure whitish spots in 2, 3 and 6 and a pale subterminal macular band (described thus but figure shows a continuous discal row of yellow spots 1-6 and no subterminal band).

*debilis*, El. (34). Elwes' Ace. Assam (Tring, Mus.). VR. (I have not been able to recognize this species. ?=*baileyi*, South S. E. Thibet, unh reddish ochreous brown, with a post median series of yellow spots in 3-7).

13 (6d. 9a). Uph cilia cinereous. Unh and apex unf overlaid very dense ochreous scales; unf pale yellow submarginal streaks at apex; unh obscure yellow discal dashes in 2, 3, 6 and 7 as well as an obscure series of submarginal dashes in 1-6. Upf spots pale yellow, cell spots separate.

*thandaunga*, nov. (38-41). The Thandaung Ace. Karen Hills, 2 ♂♂ in April 1914. Resembles a *Pithauria*.

14a (6c). Uph cilia prominently chequered. Upf cell spot usually double.

## Cerata Group.

14b (18). Unh with more than one pale spot or streak.

14 (15a). Unh no spot base 7; ochreous brown with whitish discal streaks in 2, 3, 5 and 6 and silvery streaks in 1, 2 and 3. Upf cell spots separate. Unf no pale marking in 1.

*latris*, Leech. (35). Leech's Ace. W. China. VR. (= *perbella*, Hering, China, upf lower cell spot elongated towards base, unh 2 long pale streaks from base, some discal and submarginal markings or pale streaks, 29 mm).

15a (14). Unh more or less prominent pale spot base 7. Unf a pale marking in 1 and submarginal spots at apex.

15b (17). Unh very dark brown, markings white. Unf pale streak in 1 nearly reaching to termen.

15b (17). Unh markings consist of small dots and are very variable; the series is discal spots in 2-6 and 2 spots in 6 also an obscure submarginal series. ♂ no brand.

*astigmata*, Swin. (35-40). The Southern Spotted Ace. Coorg, N. Kanara. N.R.

## I. 99. Halpe.—(contd.)

16 (15). Unh markings larger and more constant, similar, but only a single large spot in base 7 in addition to the submarginal spots. ♂ with brand. Uph white spots in 2, 3 and 4 show through obscurely from below.

\**cerata*, Hew. (35-40). The Northern Spotted Ace. Sikkim to Karens. NR.

17 (15b). Unh ochreous brown with very large numerous yellow markings; discal and submarginal markings conjoined in 4-5, cell yellow and large spot beyond, also a double basal streak in 1. Unf short pale dash mid 1 against v1. Uph prominent whitish hyaline spots in 2, 3 and 6. Wings produced.

\**submacula*, Leech (42). The Chinese Spotted Ace. China (Chang Yang), Tonkin, Formosa.

18 (14b). Unh bright ochreous brown, single white spot in 6 and very obscure traces of darker diffused discal markings. Unf traces of a submarginal apical fascia and a very small spot in 1 against v1. Uph cilia cinereous, chequering rather obscure.

*hyrie*, DeN. (32-37). DeNicéville's Ace. Sikkim to Shan States. R. (I have a ♂ from S.E. Thibet which has a plain underside and the cilia are unchequered).

19a (6b). Unh with dark spots.

19b (24a). Uph cilia not white.

## Masoni Group.

19c (21a). Uph unmarked, cilia, dull ochreous brown, broadly chequered at ends veins.

19 (20). F cell spot double. Unf apex and costa vivid rufous. Unh olive rufous with a series of more or less obscure black discal spots.

*lucasi*, Mab. (35). Lucas' Ace. Mupin, E. Thibet.

20 (19). F. cell spots small separate, all spots small. Unh bright ferruginous shining, base and margin darker, a discal row of small diffused black spots 2-7. Unf apex rather narrowly ferruginous.

*evershedii*, Evans. (36-37). The Palni Ace. Palnis and Travancore. VR.

21a (19c). Uph a discal yellow patch divided by dark veins.

21 (22a). Uph cilia dull ochreous broadly chequered at ends veins. ♂ unh dull chrome yellow, small black discal spots in 1-7; unf submarginal yellow spots at apex. ♀ unh ferruginous, spots obscure; unf apex ferruginous. Upf lower cell spot absent in ♀ and in ♂ continued towards the base. ♂ with brand.

\**decorata*, M. (30-36). The Ceylon Ace. Ceylon R.

22a (21). Uph cilia yellow, unchequered. Unh yellow with small black discal spots 1-7. ♂ no brand.

22 (23). Uph yellow area broad, diffused. ♂ upf no spot in 1 or very obscure. Unh spots may be absent.

*honorei*, DeN. (30-36). The Madras Ace. S. India to N. Kanara. R.

23 (22). Uph yellow area narrow and sharply defined. ♂♀ upf a double spot in 1.

\**masoni*, M. (28-34). Mason's Ace. Chin Hills to S. Burma. Tonkin. ? Philippines (1 ♂ B.M.). R.

24a (19b). Uph cilia white. Unf submarginal pale spots at apex.

## Insignis Group.

24 (25). Unh dark brown, sparsely overlaid whitish scales leaving dark veins and obscure dark discal spots. Upf spots small, spots in 2 and 3 not overlapping. Uph cilia pure white throughout. Wings produced.

*insignis*, Dist. (30-34). The White-fringed Ace. S. Mergui, Malay Peninsular, Sumatra, Borneo. VR.

25 (24). Unh densely overlaid pale ochreous scales, leaving a series of large dark discal spots and also a submarginal conjoined series. Upf spots large, spots in 2 and 3 overlap. Uph cilia grey white. Wings rounded.

*burnana*, Swin. (29-33). Swinhoe's Ace. N. Shan States to Ataran Valley. R.

26 (6b. 19a). Unh a broad continuous white band from mid 1 to apex, spots in 6 and 7 forming part of the band may be small; a spot in cell and near base 7, which may be absent; usually some small discal spots in 5 and 3 just beyond the band; variable number of small submarginal spots in 1-3.

## I. 99. Halpe.—(contd.)

Unf prominent whitish submarginal spots from 2 to costa. Uph cilia grey white, faintly chequered.

**Moorei Group.**

*moorei*, Watson. (30-34). Moore's Ace. S. India, Mussoorie to Burma, Andamans. N.R. Hong Kong, Annam, Siam, Sumatra, Borneo, Bazilan, Jola Is. Celebes. (= *teliga*, Swin, *beturina*, *bazilana* and *joloana*, Fruh. The Celebes form passes under the name *beturia* Hew and the type in the B. M. = *moorei*, but Hewitson's description applies to the insect Elwes redescribed as *majuscula*, No. 39).

27a (1a). F either a single upper spot in cell or none.

27b (31a). Antennæ above white banded below club.

**Zema Group.**

27 (28a). Unh prominent continuous white discal band from mid 1 to apex, no submarginal or other markings. Cilia above whitish at tornus F and H, turning brown towards apex.

α. Large. Upf spots large, those in 2 and 3 overlap. Unf with submarginal apical spots. Unh clothed brown ochreous scales; discal band very wide, 2½ mm. Upf 3 apical spots.

\* *zema zema*, Hew. (32-37). The Banded Ace. Sikkim to S. Burma, Malay Peninsular. NR.

β. Smaller and darker. Upf spots smaller, those in 2 and 3 separate. Unh discal band narrow, 1 to 1½ mm. Unf submarginal apical spots obscure. Upf 2 apical spots.

*zema ormenes*, Plotz. Described from Nias. Flies in S. Mergui as a race or variety of typical *zema*, which seems to occur with it (possible races are *vilasina*, Fruh., Sumatra; *vistara*, Fruh., Java; *mahapara*, Fruh., Philip-pines).

28a (27). Unh no white band.

28a (30). H termen rounded at tornus.

28 (29). F spots prominent, yellow, those in 2 and 3 overlap. Cilia pale to dark ochreous. Below apex F and all H overlaid ochreous brown; unh unmarked or with very obscure postdiscal yellow spots, that in 1 being largest.

*kumara*, DeN. (32-36). The Plain Ace. Sikkim to Naga Hills. R. (= ? *perfossa*, South, S.E. Thibet).

29 (28). F spots small, white, those in 2 and 3 separate. Cilia white on H and brown on F. Below apex F and all H rather dark brown, with more or less prominent post discal small white spots.

*fasciata*, Elwes. (35). The Bornean Ace. Borneo. VR.

30 (28a). H termen excavated before tornus, wings produced. Upf spots white, those in 2 and 3 overlap. Unh and apex unf olive brown. Unf traces of a pale fascia; unh obscure row of black postdiscal spots. Cilia brownish white on H, brown on F.

*knyvetti*, Elwes. (32-30). Knyvett's Ace. N. Kanara, VR. Sikkim to S. Burma, NR. Sumatra.

31a (27b). Antennæ above not white banded below club.

**Egena Group.**

31b (33a). Unh no pale central band. Cilia whitish H, darker on F, unchequered.

31 (32). Upf with spots. Unh with discal black spots which may be outwardly bordered by obscure pale spots, Tegumen hooks pointed and simple, not forked or truncate.

α. Upf often with a cell spot; spots in 2 and 3 overlap, 2 or 3 apical spots. Unh ochreous brown, variable. Unf obscure pale submarginal fascia. Tegumen hooks short.

*sikkima*, *sikkima*, M. (30-36). The Sikkim Ace. Sikkim to Dawnas. NR. Malay Peninsular, Sumatra, Borneo. (? = *selangora*, Swin, Selangor).

β. Upf cell spot absent; spots in 2 and 3 small, only one apical spot. Rather pale brown above as *hieron*. Tegumen hooks long, longer than tegumen.

*sikkima palawea*, Stg. Palawan. (*sikkima* probably occurs elsewhere, but is difficult to recognize).

## I. 99. Halpe.—(contd.)

32 (31). Upf spotless or only a very faint discal spot in 2. ♂ no brand. Very pale brown above. Unf discal and 1 apical spot show. Unh and apex unf olive brown, traces of a pale submarginal fascia. Tegumen horns truncate. *hieron*, DeN. (34). The Pallid Ace. Sumatra.

33a (31b). Unh in well marked specimens a white or yellowish central band, divided by dark veins, from mid 1 to apex; spot in 4-5 large; submarginal row of pale spots unf and unh; very variable and there may appear to be two pale areas separated by a continuous row of dark discal spots. Tegumen hooks always truncate, forked or with a side projection (in *sulphurifera*).

33b (37a). Unf submarginal row of spots do not extend into 1, nor is there any pale patch in 1 beyond the band.

33c (36). Tegumen hooks truncate at ends.

33d (35). Genitalia clasp double toothed.

33 (34). H cilia whitish, prominently chequered on F.

α. Small. Unh central band whitish, prominent, continuous.

\* *homolea ceylonica*, M. (30-34). The Indian Ace. Ceylon, India. NR.

β. Large. Unh central band very variable, never continuous and often absent.

\* *homolea homolea*. Hew. (31-32). Sikkim to Karens. Singapore (= ? *veluvana*, Fruh. W. Java. *homolea* was described from Singapore and until its genitalia are examined its identity will remain in doubt).

34 (33). Above cilia F and H greyish brown, unchequered.

α. Below vinous brown, band and spots obscure. Upf dark, spots small, no cell spot, one apical spot, spot in 2 crescentic.

*egena egena*, Fd. (30-35). The Dubious Ace. Ceylon VR. (= *brunnea*, M).

β. Smaller. Unh very variable, resembling *homolea*.

*egena aucma*, Swin. Assam to Tavoy. C. (= *perara*, *marta* and *wantona*, Swin; ? *kusala*, Fruh, S. Annam).

35 (33d). Genitalia clasp plain.

α. Identical with *aucma*, only to be distinguished by the clasp.

*auriferus pelethronix*, Fruh. (30-34). The Similar Ace. Tavoy to S. Burma. NR. Java. R.

β. Cilia more ochreous. Spots F small, none in cell, only one apical spot. Unh central band prominent, markings bright ochreous yellow.

*auriferus auriferus*, El. Nias. R. (= *hazis*, DeN-).

30 (33c). Tegumen forked and tips pointed; clasp as *homolea*. Cilia as *aucma*. Unh ochreous yellow markings.

*flava*, nov. (30-34). The Tavoy Sulphur Ace. Tavoy to S. Burma. NR.

37a (33b). Unf with a pale marking in 1.

37 (38a). Unf pale marking in 1 discal, a spot across 1 just beyond the brand. Uph clothed long grey hairs. Upf cell spot obscure, 2 apical spots. Unh band pale yellow, prominent.

*sulphurifera*, HS. (34-38). The Sulphur Ace. Philippines and Sulu Islands. R. (= *luteisquama*, Mab.).

38a (37). Unf pale markings in 1 marginal, an extension of the marginal fascia.

38 (39). Unh markings yellow, prominent. Upf spots complete.

*nephele*, Leech. (40). The Chinese Sulphur Ace. W. China. R.

39 (38). Unh markings much paler and diffused. Upf no cell spots and only 2 apical spots.

*beturia*, Hew. (36-38). The Celebes Sulphur Ace. Celebes. (= *majuscula* Elwes).

## I. 100. Onryza. The Brush Ace. (Plate 32).

Above brown, dorsum and base F and most of H clothed yellow hairs; cilia pale ochreous H, brown F. Upf with yellow hyaline spots, double in cell lower part produced towards base, spot in 1 against v1, spot mid 2, in 3 and apical in 6 and 7. Unh and apex costa and cell unf more or less overlaid ochreous scales, tending on F to form a narrow yellow submarginal band and on H leaving a chequered pattern, which is obscure in pale specimens.

\* *meiktita*, DeN. (30-34). Meiktita to Dawnas. R. (*siamica*, Riley and Godfrey, N. Siam, is a brighter race).



**I. 101. Sebastomyia.** The Tufted Ace. (Plate 32.)

Above dark brown with pale yellow hyaline spots on F, figure of 8 spot in cell, spots in 2, 3 and apical 6-8. Uph a pale brown area mid disc. Below dark brown; un<sup>f</sup> mid dorsum whitish and a narrow pale yellow submarginal band. Unh broad yellow transverse band from near base at v1 to apex, a streak under v8 from origin to middle and an irregular submarginal line.

\* *dolopia*, Hew. (30-34).<sup>9</sup> Sikkim to Karens. NR.

**I. 102. Actinor.** The Veined Dart. (Plate 32.)

Above brown clothed ochreous hairs on dorsum F and all H, cilia grey; semi-hyaline pale yellow spots F and H and the veins beyond the spots pale yellow. Up<sup>f</sup> double cell spot, continuous row 1-5 (double in 1) and conjoined apical spots in 6-8. Uph large spot across cell and postdiscal row 1-5. Below paler and all veins pale yellow; Unh spots dark edged and more extensive, a spot base 7, central row 1-7 across cell and postdiscal row from 1-6.

\* *radians*, M. (34-42). Chitral to Kumaon at 4,000 feet. R.

**I. 103. Cupitha.** The Wax Dart. (Plate 32.)

Above dark brown with yellow markings. Up<sup>f</sup> basal half, costa yellow; a discal band 1-7, the part in 1 continued along v1 towards the base; lower spot in cell over origin v3, conjoined to the band; upper end of band incurved in 7. Uph costa yellowish white, yellow transverse broad discal band from 1-4. Cilia pale yellow H, chequered on F. Below entirely yellow except for a broad dark brown central band from base to middle on F and brown tornus F and H.

\* *purreea*, M. (28-33). S. India, Sikkim to Burma, Andamans, NR. Malay Peninsular and Islands, Philippines, Celebes. (= *tympanifera*, M.; *verruca* and *lycorias*, Mab.; *alara*, Fruh.)

**I. 104. Nicevillea.** The Dartlets. (Plate 32.)

Above dark brown with tawny markings. Up<sup>f</sup> lower part of tawny discal band central not distal as in *Padraona*, etc., i.e. spot in 1 is in the middle of 1, spot in 2 under the origin of v3 and spot in 3 reaches base 3; base and costa always dark; spot in 4 to base 4, may be a discal spot in 5 uniting the discal and apical spots in 6-8; spot near end cell against lower edge, conjoined to the spot in 2, but separated by a short black bar from the spot in 3, may be an upper cell spot above it. Uph tawny discal band, but no spot in cell or in 7.

1 (2a). Uph discal band narrow composed of small conjoined spots 1-5. Above very dark with dark orange markings. Up<sup>f</sup> spot in cell small, no upper spot or spot in 5. Below costa and apex F and all H overlaid dark ochreous green scales, discal band prominent on F but obscure on H.

*concinna*, El. (30). The Tamil Dartlet. Palnis to Nilgiris. R.

2a (1). Uph discal band broad, continuous, markings bright orange.

2 (3). Below costa and apex F and all H yellow to orange, discal band on H and upper part of F only defined by black spotting.

\* *gola*, M. (26-28). The Common Dartlet. Ceylon, S. India, Sikkim to Burma, Andamans. NR. S. China, Malay Peninsular and Islands, Philippines and Celebes. (= *goloides* and *naranata*, M.; *locus*, *fabriolata* and *alfurus*, Plotz.; *taxilus*, *pseudolus*, *akar* and *grandis*, Mab.; *rajagriha*, *trishna* and *nipata*, Fruh.)

3 (2). Below dark brown, sparse ochreous scales on costa and apex F and on H, discal band F and H yellow, sharply defined and not edged black spots.

*paragola*, DeN. (26-28). The Malay Dartlet. Dawnas to Mergui, Sumatra, Malay Peninsular. Borneo. NR

(The following belong to this genus—*augustula*, HS = *melanion* and *fitjienis*, Mab. Oceania, Fiji and N. Australia—*wamba*, Plotz, = ? *tabla* Swin and *rudha*, Fruh. New Guinea, Aru and Key Is—*fulvomargo*, Joicey and Talbot, Dutch New Guinea).

**I. 105. Taractrocer.** The Grassdarts. (Plate 32.)

Above dark brown with pale discal spots in 1-8, those in 4 and 5 shifted out; an upper cell spot beyond mid cell and a lower conjoined spot towards base. Uph spot mid cell and a discal series 1-7, upper two often absent.

1a (4a). Above markings white to pale yellow, narrow, separated by dark veins, spots in 4 and 5 up<sup>f</sup> remote from spot in 3 and 6.

1b (3). Unh a pale streak in mid 1 from base to termen, H spots in 1-4 in a straight line. Below spots white. Cilia whitish.

I. 105. *Taractrocera*.—(contd.)

1 (2). Unh no spot mid 7 or base 7; spot in 6 large, nearly to base; spot in cell against upper edge; no spot in 1 but the white streak is very broad and prominent. Unh closely overlaid greenish scales, veins concolourous.

\* *danna*, M. (25-30). The Himalayan Grassdart. Kashmir to Bhutan, NR.

2 (1). Unh spot mid 7 and obscure spot base 7; spot in 6 small; cell spot across cell; a spot in 1 and the white streak is narrow.

α. Unh closely overlaid dark ochreous scales, veins concolorous.

*maevius maevius*, F. (20-28). The Common Grassdart. Ceylon. C.

β. Unh overlaid dark ochreous to whitish scales, veins prominently pale.

*maevius flaccus*, F. India, Burma. C. (= *sagara*, M.; *silhetica*, Plotz and *lineata*, Druce, Siam).

3 (1b). Unh no pale streak mid 1; spots pale yellow, discal row more curved, a spot mid 7, none base 7.

*ardonia*, Hew. (22-28). The Malayan Grassdart. Malay Peninsular, Sumatra, Borneo, Celebes. (= *sumatrensis* and *sangira*, Plotz).

4a (1a). Above markings tawny to orange.

4b (7a). Uph or unh a yellow spot mid 7.

4 (5a). Unf yellow cell spot not nearly as far back as the origin of v2.

α. Above spots small and separate. Upf usually no spot in 1, spots in 4 and 5 remote from those in 3 and 6, cell spot small and against upper edge. Uph spots in 4 and 5 remote from those in 2 and 3, spot in 6 often absent, no spot in 7. Unh more or less overlaid dark ochreous scales.

*ceramas ceramas*, Hew. (22-27). The Tamil Grassdart. Travancore to N. Kanara. NR, on plateaux.

β. Above all markings much broader. Upf spots in 4 and 5 touching spot in 6, remote from spot in 3; always a spot in 1. Uph complete conjoined series 1 or 2-7, spot in cell prominent. Unh overlaid ochreous scales leaving blackish edges to the spots.

\* *ceramas nicèvillei*, Wat. N. Kanara to Bombay. NR. (= *coras*, Auct nec Cramer).

γ. Above markings still more extensive; upf spots in 4 and 5 touch spots in 3 and 6. Unh completely overlaid ochreous scales, cell spot and elongate spot in 4-5 only visible by translucence.

*ceramas oberthuri*, El. Anaimalai Hills, S. India. VR.

δ. Above as *ceramas*, but uph spots in 2 and 3 touching spots in 4 and 5. Unh margin only yellow giving a prominent black spotted effect round the yellow spots.

*ceramas atropunctata*, Wat. Chindwin, N. Burma, Hong Kong, R.

5a (4). Unf yellow cell spot at least as far back as the origin of v2; upf always a spot in 1.

5 (6). Unh a yellow spot base 7. Above markings very broad and rather pale yellow; spots in 4 and 5 joined to spots in 2 and 3, cell and costa yellow. Uph discal series complete and conjoined, cell spot large. Unh overlaid ochreous scales, leaving prominent small black spots. Apex F more produced than usual.

*flavoides*, Leech. (26). The Chinese Grassdart. W. China. R.

6 (5). Unh no spot base 7. But for the antennæ exactly like *Padraona mæsoides*. Unh yellow spots more or less separated by black veins.

α. Above markings narrow and all divided by black veins. Upf spots in 4 and 5 remote from spots in 3 and 6, cell spot only reaching to origin v2. Uph small cell spot, discal row 1-5. Below apex F narrowly and all unh overlaid sparse ochreous scales: unh spot mid 7 and small spot base 6.

*ziclea samadha*, Fruh. (22-28). The Veined Grassdart. Thayetmyo to S. Burma, Peninsular Siam. VR.

β. Above darker ochreous and markings broader; upf spots in 4 and 5 join spot in 3 but not spot in 6. Uph spot in cell obscure. Unh darker due to less ochreous scaling, veins towards termen distinctly darkened.

\* *ziclea tissara*, Fruh. Sumatra, Borneo, Java. (Fruh, separates the form from Java as *ikramana*. The Philippine race is *ziclea*, Plotz.= *luzonensis*, Mab., *sudodana*, Fruh. is the race described from Sumba).

7a (4b). Uph or unh no spot mid 7. Upf markings broad, spots in 4 and 5 almost completely overlapping the spot in 3; cell yellow. Uph spots coalesced.

7 (8). Upf spots in 4 and 5 just touching the spot in 6; the yellow cell area

I. 105. *Taractrocera*.—(contd.)

may be conjoined to the discal yellow band through the spot in 2. Upf usually a spot in 6; cell spot prominent or absent.

\* *archias quinta*, Swin. (22-28). The Yellow Grassdart. N. to S. Burma, VR. Siam, Annam, Malay Peninsular, Borneo. (The following races have been described—*nigrolimbata*, Snell=*turica*, Plotz, Java=*godhania*, Fruh, Sumba=*kisaga*, Fruh, Lombok=*bavius*, Mab., Timor=*antalcidas*, Fd, Celebes=*archias*, Fd. Amboina=*udraka* Fruh, Dutch New Guinea).

8 (7). Upf spots in 4 and 5 overlapped by spot in 6, forming a compact band from dorsum to apex: the yellow area in the cell may or may not be joined to the discal yellow area in 2. Upf usually no spot in 6; cell spot present or not. Smaller than *archias*.

*aliena*, Plotz. (20-25). The Alien Grassdart. Java. (= *myconius* and *dischaka*, Plotz. and *dhshalia*, Mab. Probably *talantus*, Plotz from Celebes is an *aliena* race).

(The Australian group have a brand on upf and appear to comprise 3 species—*dolon*, Plotz., N. Queensland, for which the older name may be *rectivitta*, Mab.—*anisomorpha*, Lower, N. Queensland—*papyria*, Bdv., Australia=*agraulia*, Hew., *tumosa*, Guest., *celaeno*, Cox, *alix*, Plotz and *minus*, Miskin).

I. 106. *Padraona*. The Darts. (Plate 32.)

Above marked much the same as in the last two genera. Upf the discal band with the lower part distal, spot in 1 beyond the middle of 1 and spot in 2 beyond the origin of vein 3 never joining spot end cell.

1a (3a). Upf no spots in 4 or 5.

## Fettingi Group.

1 (2). Above dark brown with a purple sheen. No ♂ brand. Markings very narrow, dull yellow and separated by veins. Upf double elongate spot end cell, discal spots 1-3, apical 6-7. Upf discal spots 1-4, no cell or costal spot. Below as above, unf purple brown, apex and all unh overlaid dark ochreous scales; discal spots unh purplish. Tegumen simple, tapering to a blunt point; clasp simple, rounded.

*purpura*, nov. (32). E. Java, 5,000 feet. The Purple Dart.

2 (1). Above no purple sheen. All markings narrow, orange, separated by veins. Upf discal band 1-5, no spot in cell or in 7.

α. Above generally paler and markings broader, cell spot obsolete upf. ♂ upf a continuous dark shining silky brand (disappears with petrol) mid 1 to base 3, behind the yellow discal band. Upf spot in 4-5 small and against outer edge of the spot in 3. Unf apex and all unh ferruginous; unf discal band and cell spot yellow; unh a spot in 6. Tegumen broadly bident; clasp with dense fine hairs at tip.

*fettingi fettingi*, Mosch. (33). Sumatra (= *euria*, Plotz and *pavor*, DeN.)

β. Above darker and markings broader; cell spot prominent and prolonged towards base along mv. Upf discal spots in 2, 3 and 4-5 equal. ♂ brand black, hard to see (not disappearing with petrol), irregular, disconnected. Below much darker ferruginous, veins on H black, no spot in 6, traces of cell spot, sometimes basal and central spot in 7. Unf cell spot, discal band and apical spots yellow; unh spots very dark orange, but a yellow detached spot in 1.

*fettingi oritus*, Mab. W. Java.

3a (1a). Upf always a spot in 4 and in 5.

3 (4a). ♂ Upf with a black brand behind the yellow discal band, continuous and narrow. Upf no costal spot in 7. Upf in ♂ the discal yellow band from 1-5 very straight and even width throughout, joining the outer edge of the spots in 6-8; in ♀ the lower part 1-3 is wider as usual; cell and costa all yellow to central black Y band in ♂, basal half dark in ♀; a dorsal streak from discal band to base in ♂ and a streak above it in 1 from inner edge of brand to base. Upf continuous broad discal band from 1-5, continued into 6 by a small inner spot; cell spot present. Below costa and apex F and all H rather pale yellow, discal band H defined by irregular narrow black edging. Tegumen simple, tapering to a blunt point, clasp simple rounded.

I. 106. *Padraona*.—(contd.)**Kobros Group.**

*kobros rectifasciata*, El. (29-32). The Branded Dart. Karens to S. Burma, NR. (*cakka*, Fruh. is the darker race from Java; *sravasta*, Fruh. from Nias and probably occurs on Sumatra; *kobros*, Plotz.=*procles*, DeN., occurs on Aru, Key, Mysol and Gilolo; the following are probably referable to *kobros-tranquilla*, Swin., Milne Bay. N. G.—*terranea* and *paceka*, Fruh., Dutch New Guinea—*dhamika* and *dipavansa*, Fruh., Waigou. The following species belong to this group with a brand upf from 1-4—*walkeri*, Heron, N. Australia—*heterobathra*, Lower, N. Australia and Key Is.).

4a (3) ♂ upf no brand from vl-4. Uph usually a costal spot mid 7 and a cell spot; unh also a spot base 7.

**Dara Group.**

(The examination of the genitalia has proved that the *dara* group contains a number of almost exactly similar species; numerous names have been published usually with inadequate descriptions; I have assigned these names as best I can so as to avoid the creation of more names; only a genitalia examination of the types will settle the matter of names finally.)

4 (5a). Upf no brand at all; cell and costa yellow to the dark Y band, may be a dark narrow basal streak in the cell; discal band confluent and touching the outer edge of the apical spots, spot in 5 overlaps the spot in 4. Uph discal band confluent, spots in 4 and 5 not advanced; spot in cell and mid 7. Tegumen broadly tapering and minutely bifid.

α. uph discal band usually continued into 6 by a short bar on inner edge towards spot in 7. Unf apex and all unh yellow, discal band defined by prominent small black spots; base H black dusted. Unf cilia obscurely chequered in ♂, prominently in ♀.

*phellus phellus*, Mab. (23-27). The Brandless Dart. Sikkim to S. Burma. NR.

β. Upf a narrow yellow discal streak over vl from discal band to base. Uph no spot in 6. Below yellow scaling sparser, effacing the black spotting; unh no spot in 6.

*phellus tanya*, Fruh. (24-28). Java. NR.

5a (4). Upf ♂ with a short obscure brand over middle of vl, behind the discal band or just entering the yellow discal area, easily seen with petrol.

5b (8a). Upf and uph discal band divided by dark veins. Upf spot in 4 does not overlap spot in 3 and spot in 5 does not touch spot in 6 as a rule.

5c (7). Unh no discal spot in 6 linking the discal band to the spot in 7.

5 (6). Large. Tegumen broadly, bident tip clasp fringed.

α. Upf markings narrow, costa and base dark. Unh very dark ferruginous ochreous. Uph discal band not entering 6.

*hetaerus zatilla*, Plotz (31-35). The Large Dart. Bassein to S. Burma. VR. (2 specimens examined).

β. Above markings broader; upf spot in 5 just touches spot in 6 and spot in 4 just overlaps spot in 3; uph discal band just enters 6 centrally as in *augias*.

*hetaerus chariyawa*, Fruh. Java. (1 specimen examined).

γ. uph discal band very irregular, spots in 4 and 5 shifted out and the discal band just entering 6 by a spot on the inner edge of 5. Markings broad.

*hetaerus heterus*, Mab. Philippines. (1 examined).

6 (5). Small. Tegumen slenderly and gradually pointed, tip of clasp pointed and not conspicuously fringed. Upf markings narrow; costa and base cell ochreous with a black streak in the cell or may be all darkened at base. Uph spots in 4 and 5 overlap to the middle of 3, no extension into 6. Unh dark ochreous with discal band showing prominently, no black spotting.

α. Above markings very narrow and unh very dark.

*maesoides ottala*, Swin. (24-28). The Lesser Dart. Karens. R.

β. Above markings wider and unh not so dark.

\**maesoides maesoides*, But. Dawnas to S. Burma, Malay Peninsular, Banka. C. Probably throughout Macro-Malayana. (? = *flavoguttata*, Plotz, Philippines).

γ. Larger. Upf markings narrow. Uph discal band more confluent and spots in 4 and 5 shifted out.

*maesoides ottalina*, nov. (29). Andamans, VR.

I. 106. *Padraona*.—(contd.)

7 (5c). Unh a spot in 6 connecting the discal band in 5 to the spot in 7. Tegumen undivided.

α. Above markings very narrow and pale yellow; cilia grey throughout. Uph a spot in 6 against the inner edge of the spot in 5 and a spot in 7, which may be obscure or absent. Unh pale yellow, black dusted, discal band outlined black spots. Tegumen blunt, slightly expanding.

*dara dara*, Koll. (27-29). The Common Dart. Chitral to Kumaon from 4 to 10,000 feet. NR. (= *maesa*, M.; *nala*, Plotz. *zebra*, Mab).

β. WSF above and below darker, markings darker and broader. Uph usually no spot in 6 or 7; tegumen blunt not expanding. DSF much paler below and above; wings rounded as in ♀♀; tegumen bluntly triangular.

*dara pseudomæsa*, M. (27-30). Ceylon. S to Central India. C.

γ. Larger and more brightly coloured. Same seasonal differences in appearance and genitalia. Unh in WSF is bright orange, prominently black spotted. Uph often a spot in 6 and usually one in 7. Very variable.

\* *dara confucius*, Fd. (29-36). Mussoorie to Shan States, NR. China (allied race *angustata*, Matsum = *pava*, Fruh, Formosa).

δ. Comparatively small. Uph usually no spot in 6. Unh duller, black spotting not so much in evidence.

*dara serina*, Plotz. (28-33). S. Burma, Malay Peninsular, NR. Sumatra, Java, Lombok, Sumba, Sumbawa, Nias. (= *yojana*, *ganda*, *sapitana*, Fruh).

γ. Very dark with narrow pale yellow markings. Unh pale yellow. Tegumen as in DSF form of *pseudomæsa*.

*dara dilutior*, Elwes. (28-33). Borneo, Pulo Laut. (= *ahastina*, Fruh).

8a (5b). Upf and uph discal band confluent; upf spot in 5 usually touching and may be conjoined to the spot in 6 and the spot in 4 overlaps the spot in 3.

8b (10). Unh a spot in 6 connecting the discal band to the spot in 7; uph spot in 6 may be present and always a spot in 7.

8 (9). Tegumen variable, but never ending in 2 long points as in *nitida*, always broadly bident.

α. Small. Upf discal band completely confluent from 1 to apex.

*sunias satra*, Fruh. (22-25). Ceylon and Andamans, C. The Tropic Dart.

β. Larger. Upf apical spots in 4 and 5 not completely conjoined to the discal and apical spots. Very variable.

*sunias tropica*, Plotz. (25-34). S. India, Sikkim to Burma, Malay Peninsular and Islands to Celebes. C. (= *palnia*, Evans; *dushla* and *nikaja*, Fruh.; *philænus*, Mab. incorrectly assigned a brand from 1-4 by Elwes. *flava*, Murray = *japonica*, Mab is the race from Japan and China). The specimens I have examined show the following variation:—

Var. 1. Unh bright ochreous, black spotting prominent. Markings broad. (25-29 mm.) from S. India, N. Shan States to Tavoy, Sumatra, Java, Batoe Is. and Celebes—23 examined.

Var. 2. Unh pale yellow, band and black spotting obscure. (26-29). From Assam to Karens—4 examined.

Var. 3. Unh darker, black suffused presenting a greenish appearance. (27-33). from S. India, Sikkim to Dawnas, Sumatra—14 examined. This is what I described as *palnia*.

Var. 4. Darker above with very narrow markings. (25-29), from Rangoon to S. Mergui—4 examined.

Var. 5. Dark with broad markings. Unh dark greenish. (30-34), from Karens—2 examined; may be a var. of *hetaerus*.

γ. Above markings darker and tend to be separated by veins. Unh dark orange band rather obscurely black edged.

*sunias sunias*, Fd. (25-27). Moluccas. (= *ahrendti*, Plotz.).

9 (8). Tegumen deeply bident. Superficially inseparable from some forms of *sunias*. Unh ochreous, black spotting prominent. Upf ♂ brand longer than usual, covering centre third of v1; dorsal yellow streak restricted, not reaching to outer edge of the discal band.

*nitida*, Mab. (26-28). The Narrow Bident Dart. Ataran and Tavoy, NR. (8♂ and 3♀). Philippines (1♂).

10 (8b). Unh no spot in 6; black dusted and discal band prominent. Above much darker than usual, markings very dark orange. Very like *mæsooides*. Tegumen broadly bident.

**I. 106. *Padraona*.—(contd.)**

*trachala*, Mab. (24-26). The Broad Bident Dart. Assam to Burma, C. Malay Peninsula, Sumatra, Java and Borneo.

**I. 108. *Telicota*. The Palmdarts. (Plate 32.)**

Above dark brown with yellow to orange band of decreasing conjoined spots 1-5, to outer edge of apical spots in 6-8; costa to apical spots and all end cell may be yellow leaving only a dark central band from mid 1 to v5 or, usually ♀♀, cell and costa may be dark leaving only a yellow spot end cell; basal  $\frac{1}{2}$  of 1 usually dark with a tawny streak along v1; dorsal streak from base to discal band. Uph normally cell spot joined to base by a yellow streak and a broad discal band of conjoined spots 1-4 or 5, but uph may be plain tawny. Unh dark brown; apex and costa F and all H overlaid from pale ochreous to dark ferruginous scales; markings at apex F and on H may be edged black spots. All species are very variable.

1a (4). ♂ with an alar sex mark.

1b (3). ♂ with a prominent brand upf mid 1-base 4, no tuft. ♂ with a straight grey brand in the middle of the black central band; F v3 from mid 2 and 4. ♂ upf cell yellow and costa yellow to the apical spots; basal half of 1 yellow, black dusted. ♀ base dark leaving yellow spot end cell. Uph cell spot and discal band well marked. Unh very variable, discal band usually outlined black dots. Tegumen deeply divided.

**Augias Group.**

1 (2). Upf outer edges of discal spots deeply excavated and continued along veins to termen in ♂, a similar tendency uph.

*augias augias*, L. (30-35). The pale Palmdart. Ceylon, S. India to Sikkim to Burma, Andamans, NR. China, Malay Peninsular and Islands to Australia. (= *colom*, F. The Australian race is *krefftii*, McLeay = *olivescens*, HS. *argus*, Plotz, *ancilla*, HS. and ? *anisodesma*, Lower).

2 (1). Upf outer edge of discal spots hardly excavated; veins at termen not yellow. Tegumen stouter and clasp more compact.

a. Rather paler.

\* *pythias bambusæ*, M. (30-35). The Dark Palmdart. Ceylon, India, Burma, Andamans. China, Hainan, Siam, Annam and Tonkin. C. (Fruhstorfer separates the Formosan form as *formosana*).

β. Rather darker.

*pythias pythias*, Mab. Malay Peninsular and Islands. (The named races are—*upadhana*, Fruh., Lombok—*rasana*, Fruh., Philippines—*rahula*, Fruh., Celebes. Some 14 names have been assigned to *pythias* like forms found in the Moluccas, New Guinea and Australia; there are certainly 2 or perhaps 3 species in the area. In New Guinea, Aru and N. Australia there flies an allied species with an irregular brand, for which the oldest name is probably *macleayi*, Pl. Australia = *autoleon*, Misk with races *aruana*, Pl. Aru and *silativa*, Swin., New Guinea).

3 (1b). ♂ uph with a tuft of hairs from base 6. Bases dark: H no cell spot. Unh discal band not traceable; uph with a discal band (absent in some races).

**Prusias Group.**

*prusias insularis*, El. (34-40). The Tufted Palmdart. Borneo, Pulo Laut. (= *kreon*, Fruh. The Philippine race is *prusias*, Fd. = *matinus*, *sariputra* and *padhana*, Fruh. Moluccan race *batchiana*, Swin. Celebes *hercules*, Mab. = *androsthenes*, Fruh. and New Guinea *tenebricosa*, Mab.).

4 (1a). ♂ no alar sex mark. ♂ upf dark central band constricted in the middle opposite v2; spots in 4 and 5 present and touch the spots in 6-8; markings very broad, all cell and costa yellower markings narrow and base darkened. ♀ yellow spot at end cell. Below yellow brown to ferruginous, lilacine glaze in ♀. End of tegumen trident.

**Augiades Group.**

\* *palmarum*, M. (35-45). The Plain Palmdart. Calcutta to Assam to Burma, Siam, Malay Peninsular and Islands. NR. (= *raktaja*, Fruh.; *kayapu*, Doh; *baveana*, Fruh.; the Philippine race is *chrysozona*, Plotz. = *negrosiana*, Fruh. From the Celebes to Australia numerous names have been assigned to what probably represent 3 or 4 species belonging to the brandless group of *Telicota*. A great deal of research work is still required to clear up the identity of the species belonging to this and allied genera in the Papuan region).

I. 109. *Augiades*. The Darters. (Plate 32.)

Above tawny with dark borders or dark brown with yellow spots F and H. Upf always spots in 1-3 and 6-8.

1a (6a). Unh without spots or with a continuous discal row of ochreous spots 2-6 or 1-7 and a more or less prominent spot end cell. Upf spots non-hyaline (except *subhyalina*) and spaces 4, 5 near termen with spots or ochreous.

1b (3a). Unf dorsal area below v3 entirely pale, except below v1 and basal half of space 1, which is black, and a more or less apparent dark terminal border.

1 (2). Uph tawny discal area not to v7 and no traces of spots uph or unh. Tawny with black veins.

*ochracea*, Brem. (28-32). The Amur Darter. Amur, Corea. (= *rikuchina*, But, Japan, a larger race).

2 (1). Uph tawny area to v7; always at least traces of pale yellow spots upf and uph.

$\alpha$ . Upf tawny with broad dusky border and patch end cell. Unh greenish with the spots pale yellow.

*sylvanus sylvanus*, (28-36). The Palearctic Darter. Europe to N. Asia. C. (There are a number of named European forms; nearly allied races are *anatolica*, Pl. Asia Minor and *hyrcana* Christoph, Persia).

$\beta$ . Larger.  $\delta$  paler, dusky areas faint; below yellow, markings faint.  $\phi$  rather dark brown with the discal spots pale yellow; below dusky over the yellow base, spots prominent.

*sylvanus venata*, Br. and Gr. (37-40). Altai and Turkestan to Amur, N. China and Japan. (= *selas* and *amurensis*, Mab. *herculea*, But.).

$\gamma$ .  $\delta$  above borders broad and dark. Above and below veins prominently black.

*sylvanus majuscula*, El. (43). Shanghai.

3a (1b). Unf dorsum below v3 entirely dark brown, except for the yellow discal spots. Above dark brown with yellow or tawny spots and with ochreous hairs basally: upf double spot end cell and in  $\phi$  a spot in base 2; costa and cell more or less tawny.

3b (5). Upf none of the spots hyaline.

3 (4). Wings produced. Cilia fuscous grey. Below much darker than the next and the spots more prominent.

*similis*, Leech. (38). The Similar Darter. West China.

4 (3). Wings rounded. Cilia pale yellow. Below costa and apex F and all H overlaid greenish ochreous, obscuring the spots, Tegumen with 4 horns as in *sylvanus*.

*sylvanoides*, Leech. (34). The Chinese Darter. West China.

5 (3b). Upf spots above v2 hyaline. Wings rounded and cilia pale yellow. Below costa and apex (to tornus) and all H overlaid dense ochreous scales. Tegumen with 2 horns.

$\alpha$ . Larger.

*subhyalina subhyalina*, Br. and Gr. (44-48). The Sub-hyaline Darter. Amur, Corea and Japan.

$\beta$ . Smaller.

*subhyalina tibetana*, Ob. (36-40). C. and West China. Thibet, Assam. R.

6a (1a). Unh with 3 sharply defined, dark edged, white (yellow in *crataeis*) discal spots in 2, 3 and 6; sometimes traces of a spot end cell. Above dark brown, basally clothed ochreous hairs; prominent hyaline yellow spots F and H, and sometimes traces of spots uph in 4 and 5; upf no spots in 4 and 5 (rarely a dot in 4), spots in 2, 3, end cell and apical 6-8, also non-hyaline spot in 1. Unf dorsal area below v3 dark brown, except for the discal spots. Below cell, costa and apex to tornus F and all H overlaid dark ochreous scales. Cilia yellow grey. Tegumen with 2 front and 2 back horns.

6b (8a).  $\delta$  upf brand uniform black.

6 (7). Wings rounded. Top of clasp convex or flat.

*bouddha*, Mab. (32-35). The Buddhist Darter. West China and S. E. Thibet. ( $\phi$  var *consors*, Leech with white spots upf).

7 (6). Wings produced. Top of clasp concave and produced.

\* *siva*, M. (34-40). The Assam Darter. Assam to Karens. NR.

8a (6b).  $\delta$  upf brand with a central whitish line, interrupted at v1.

8 (9). Comparatively small. Unh spots white. Upper apex of clasp produced.

I. 109. *Augiades*.—(contd.)

*brahma*, M. (31-37). The Himalayan Darter. Mussoorie to Sikkim. Sylhet, Chin Hills. NR.

9 (8). Comparatively large. Unh spots yellow. Upper apex of clasp not produced.

*crataeis*, Leech. (43-46). The Great Darter. West China.

I. 110. *Pamphila*. The Chequered Darter. (Plate 32.)

Above tawny with dark borders. Unf paler; apex F and all H overlaid ochreous to green. Unf 3 apical spots in 6-8 and 2 discal in 4 and 5 near margin; unh curved discal row 1-7, spot in cell and on either side of it at bases 1 and 7; spots white. These spots appear above as tawny spots, usually prominent on F and obscure or invisible on H.

α. Above dusky borders broad. Unh greenish to reddish grey.

*comma comma*, L. (30-35). Europe to Amur. (There are many named European forms).

β. Above border very narrow and sharply defined. Unh greenish, spots white and glossy.

*comma mixta*, Alph. Tian Shan, Ferghana and Turkestan.

γ. Above border broad dusky, elsewhere dark tawny. Unh dark green, discal spots dark bordered, conjoined or nearly so.

\**comma dimila*, M. Chitral to Kumaon. (*lato*, GG, from the Dschakar Mts., Thibet and? West China is probably a good race).

δ. Above very dark and dusky border very broad, leaving only spots on H. Unh ochreous, spots obscure, whitish, reduced, usually only spot in cell and discal row 2-6.

*comma florinda*, But. Japan and Amur (= *repugnans*, Stg. and *micado*, Mab).

I. 111. *Thymelicus*. The Midgets.

Above red to golden ochreous with dark borders and in some species dark bases, areas end cells and veins. No species has as yet been recorded from Indian limits.

1a (6a). Veins nowhere conspicuously black.

1b (5). ♂ with a brand upf.

1c (3a). ♂ brand continuous from v1 to base 3 and not reaching mv till mid 2 and 3. Above border narrow, well defined.

1 (2). Above more or less overlaid dark ochreous; ♀ with pale yellow spot end cell and a discal row 3-8, which may appear more or less in the ♂. Below golden yellow; dorsum F dark brown. Costa =  $1\frac{1}{2}$  dorsum.

*actaeon*, Rott. (27). The Dark Midget. Prussia to South Europe, North Africa and Syria. (There are several named forms, that from Syria being *phoenix*, Graves).

2 (1). Above reddish yellow, unmarked. Below apex F and all H except dorsum greenish ochreous, rest reddish yellow.

*thaumas*, Hufn. (28). The Common Midget. Europe and Asia Minor (several named forms, the Syrian being *syriaca*, Tutt).

3a (1c). ♂ upf brand broken at v2, upper part lying against mv. throughout.

3 (4) ♂ brand long, lower part crosses space 1; upper part to under v3. As *thaumas*, but border above broader and more diffused.

*hyrax*, Led. (27). The Dusky Midget. Asia Minor to Turkestan.

4 (3). ♂ upf brand thin and short, lower part consists of a spot under v2 and upper not to origin of v3. Above pale golden yellow, border very narrow, and sharply defined.

*lineola*, Ochs. (27). The Golden Midget. Europe to Turkestan and Algeria. (There are several named European forms).

5 (1b) ♂ no brand. Above border broad, sharply defined, bases dark. Below uniform pale ochreous; unf dorsal dark area to  $\frac{2}{3}$  along v2.

*stigma*, Stg. (28). The Turkestan Midget. Turkestan.

6a (1a). Veins conspicuously black. Tawny above and below.

6 (7a). ♂ upf brand as *thaumas*, ♂ above border narrow, ♀ border broad, bases dark and a dark patch at end cell F; unf tornal dark patch not to dorsum.

*leonina*, But. (30). The Tawny Midget. Japan, Corea, Amur. West



I. 111. *Thymelicus*.—(contd.)

China. (The West China form is smaller and probably deserves a racial name).

7a (6). ♂ no brand.

7 (8). ♀ no black streak in cell and unf dark tornal patch not to dorsum.

α. Above borders broad, basal area H/dark; dorsum F dark throughout. *nervulata nervulata*, Mab. (30). The Veined Midget. West China.

β. Above borders narrow and generally less dark.

*nervulata astigmata*, Leech. C. China.

8 (7). ♀ a black streak in cell and unf dark tornal area to dorsum. Above borders very broad and bases dark also a dark area at end cell F; dorsum not continuously dark but divided by a pale area in the middle; in ♀ cell is dark.

α. Paler.

*sylvatica sylvatica*, Brem. (30). The Chinese Midget Japan, Amur and Corea.

β. ♂ darker. ♀ nearly black.

*sylvatica occidentalis*, Leech. West China.

γ. Above with purple reflexions. Below veins broader black.

*sylvatica tenebrosa*, Leech. C. China.

I. 114. *Iton*. The Wights. (Plate 32.)

1a (3). Unh cell all white. Above dark brown; upf with white hyaline discal spots in 2, 3 and 4 (and sometimes 5) and apical 6-8, often nonhyaline spot in 1, which does not show unf. Below dark brown, costa and apex F and dark areas H overlaid ochreous scales; unf mid termen whitish. Unh dark brown costa above cell and v7, dark brown central area below cell and dark margin, remainder white.

1 (2). Uph broad white tornal area extending to half-way up dorsum and to v4; dark marginal area usually tapers to v1 but may end there broadly. Unh central dark area absent or at most small in 2 and 3; marginal band in spots separated by white veins. ♂ unf a dense tuft of upturned black hairs from near base dorsum.

\* *semamora*, M. (42-46). The Common Wight. Sikkim to Burma, Malay Peninsula, Sumatra, Borneo and Philippines. NR. (= *barea*, Hew and *adamsoni*, Swin).

2 (1). Uph tornal white area absent or obscure, more developed in ♀ and divided by black veins. Unh the central dark area large in 1-3; marginal band not broken into spots and much broader. ♂ unf no tuft.

*watsonii*, DeN. (44-48). Watson's Wight. Chin Hills to Dawnas. West Siam. Perak (Adams' coll.). NR.

3 (1a). Unh no white in cell and not overlaid ochreous scales. Upf spots in 2, 3, 6-8. ♂ unf no tuft.

*azona*, Hew. (56). Celebes.

I. 115. *Baoris*. The Swifts. (Plate 32.)

Above dark brown, bases may be clothed ochreous hairs; upf with separate white or pale yellow hyaline spots, to a maximum of 2 in cell, 1 or 2 (nonhyaline) in 1, in 2, 3, 4 and apical 6-8. Uph unmarked or the spots unh may appear. Below dark brown, costa and apex F and all H usually overlaid greenish or ochreous scales; unf often a pale diffused discal patch in 1. Unh may have up to a maximum of a pale spot in cell against mv and a discal row 1-6.

1a (9a). ♂ with alar sex-marks.

1b (3a). ♂ with no brand upf.

1 (2). ♂ uph a prominent tuft of paintbrush like recumbent hairs, dark brown, springing from below costal vein between origin of vs 7 and 8 and overlying loose grey modified scales occupying the whole cell; unf a polished dorsal area below v2, containing a yellow brown oval brand on either side of the middle of v1; dorsum F bowed. ♂ upf very dark brown, never a spot in 1; ♀ usually fully spotted. Uph spotless. Unh may rarely have small spots in 2 and 3 in ♀; not overlaid usually.

**Oceia Group.**

α. Upf no cell spots and usually no apical spot in ♂. ♀ unf single diffused spot in 1.

## . 115. Baoris.—(contd.)

*oceia penicillata*, M. (38-47). The Paintbrush, Swift, Ceylon. NR.

β. Very variable, from fully spotted to spotless (var *unicolor*). ♂ clasp outer angle produced as a spine. Below slaty brown, not overlaid ochreous scales.

\* *oceia farri*, M. South India to Sikkim to Burma, Andamans, Siam, Tonkin, Hong Kong, Malay Peninsular, Sumatra, Nias, Java. C. (= *scopulifera* and *unicolor* M. *sikkima*, Swin).

γ. Unh greenish yellow brown.

*oceia leechi*, Elwes. C. and West China.

δ. Unh purple brown.

*oceia simillima*. Elwes. Borneo, Pulo Laut.

η. Unh plain brown as in α and β. Clasp outer angle sloped.

*oceia oceia*, Hew. Philippines. (= *neophytes*, Mab.).

2 (1). ♂ unf a brush of upturned dark brown hairs from along dorsum. F no cell spots; ♀ no spot in 1, in ♀ 1 or 2; unf whitish discal area in 1, obscure in ♂, large in ♀. Unh plain dark brown in ♂; in ♀ more or less overlaid dark ochreous scales and may be spots in 2 and 3; ♀ very like ♀ of *kumara*, but unf spot in 1 not separable into 2.

**Plebeia Group.**

*plebeia*, DeN. (36-38). The Tufted Swift. Sikkim to Burma, Java, Borneo, Pulo Laut. (= *mormo*, Mab.). NR.

3a (1b). ♂ upf a whitish centred seam from mid v1 to  $\frac{1}{3}$  along v2 (under the discal spot in 2).

**Mathias Group.**

3b (7a). F v2 opposite v11 or just before it. Wings produced. F with 2 cell spots; ♀ 1 or 2 spots in 1 upf.

3c (5a). Uph and unh unmarked. Antennæ long = v12.

3 (4). Above dark brown, bases overlaid dark greenish hairs. Below purple brown, more or less overlaid on H with dark ochreous scales. ♀ very like *cahira* ♀, but v2 F is nearer v11.

*brunnea*. Snell. (44-47) The Dark Branded Swift. Sikkim to Burma, S. Annam, Java, Bali, Borneo. NR. (= *coere*, DeN. and *sodalis*, Mab.).

4 (3). Above brown overlaid yellow hairs. All spots small and yellow; no spot in 8. Below brown, overlaid ochreous. Tegumen long ending in two divergent points and with two incurved side horns (as *conjuncta*); clasp as *sinensis*. Palpi 3rd joint more prominent than usual. Below body, etc. ochreous.

*flava*, nov. (40). The yellow Branded Swift. Kanbauk, Tavoy, one male April 1924.

5a (3c). Unh and sometimes uph more or less white spotted. Cilia grey. Unh overlaid greenish scales. Tegumen divided. Antennæ short, shorter than v12.

5 (6). Large. Tegumen not tapering. Unh with prominent spots in cell and discal 2-6, some may be absent and some show uph.

α. Tegumen tips parallel or divergent. Unh spots rarely complete and rarely showing uph.

*sinensis subochracea*, M. (36-39). The Large Branded Swift. Ceylon, S. India to Bengal. R.

β. Tegumen tips connivent. Spots usually complete and usually appearing uph.

\* *sinensis sinensis*, Mab. (40-47). Kangra to S. Shan States. W. and C. China. NR. (= *prominens*, M. and *similis*, Leech).

6 (5). Tegumen tapering, tips connivent. Unh spots much smaller, very variable, may be a full series (cell and 1-7) or none; uph usually unmarked, but frequently the spots in 3, 4 and 6 may show.

α. Very pale.

*mathias thrax*, Hub. The Small Branded Swift. Aden, Syria, Mesopotamia, Lahej.

β. Pale.

*mathias midea*, Walker. (32-38). Sind, Cutch and S. Punjab. C.

γ. Normal dark brown form. Typically with prominent spots upf; a larger darker form occurs with the spots reduced or absent (*agna*).

*mathias mathias*, Fab. Ceylon, India, Burma, Andamans. C. Japan,

**I. 115. Baoris.**—(contd.)

Formosa, China to Australia. (= *agna* and *chaya*, M. ; *monilis*, Mab. ; *juliana*, Lat. ; *ella*, *balarama*, *ceramica*, Plotz. ; *niasica*, Fruh. ; the Australian race seems larger and might stand as race *lyelli*, Roth, described from Vulcan Is.)

7a (3b). F v2 well before v11. Unh white spots in 2-5, which may show uph. Antennæ short, not as long as v12. Wings broad.

7 (8). Above pale brown, upf 2 cell spots ; brand in ♂ prominent and more oblique than usual. Below overlaid greenish scales.

*mencia*, M. (42). The Chinese Branded Swift. Shanghai, Nankow, Ningpo, Kiukiang.

8 (7). Above dark brown, single upper cell spot upf ; brand incomplete and obscure, in two parts and lower part may be absent. Below much darker and overlaid ochreous scales.

*nascens*, Leech. (44). The Semi-branded Swift. W. China.

9a (1a). ♂ no alar sex mark.

9b (22a). Antennæ long, at least as long as v12.

9c (17a). Uph never spotted and unh at most 2 spots (in 2 and 3) in some ♀♀, very rare in ♂. Dark brown.

**Philippina Group.**

9d (14a). Upf with spots in the cell.

9 (10a). Upf spots in cell conjoined to a figure of 8 ; ♀♀ with a spot in 1. Below dark brown, not overlaid differently coloured scales. Above spots pale yellow. Cilia greyish to pale yellow.

*pagana*, DeN. (46-50). The figure of 8 Swift. Sikkim to Dawnas, NR.

10a (9). Upf cell spots not conjoined.

10 (11a). Upf spots in cell prominent and sub-equal (in individuals the spots may be somewhat obscure) ; Cilia greyish. Below more or less overlaid dark ochreous scales. Normally with no spot in 1 upf in ♂ ; ♀ with 1 or 2 spots.

α. As *austeni*, larger. ♀ unh with a spot in 1.

*cahira bromus*, Leech. (42-46). The Colon Swift. W. China, Hong Kong.

β. Comparatively small and pale. Upf spot in 1 usually absent, always present unf. Lower lobe of clasp is produced, but this feature is variable.

*cahira austeni*, M. (38-42). Sikkim to Manipur. NR. (= *onchisa*, Swin.).

γ. Large and dark. Upf always a spot in 1 in ♂ ; unf the spot is double. Horns on top of tegumen not traceable as separate from the lobes, vertical aspect triangular ; lower lobe of clasp bent right over.

\* *cahira sirius*, nov. (42-46). Karens to Dawnas. NR.

δ. Small and rather dark. Spots and cilia whiter than usual. Upf no spot in 1, but usually traceable unf. Genitalia as *cahira*.

*cahira carna*, nov. (36-42). Rangoon, Tavoy. NR.

η. Larger and very dark. Upf no spot in 1 or 4 in ♂. Tegumen horns separate from the lobes.

*cahira cahira*, M. (40-44). Andamans and Nicobars. NR.

ξ. Large resembling *sirius*, but spots are smaller. Upf no spot in 1 and obscure unf. Genitalia as *sirius*.

*cahira nirwana*, Plotz. (42-46). Siam, Tonkin, Malay Peninsular and Islands. (The smaller and paler Philippine and Celebes form is *jetavana*, Fruh. and *robusta*, Elwes, from Sangir probably is a *cahira* race).

11a (10). Upf upper spot in cell absent or just traceable ; lower spot prominent.

11b (13). Above cilia brown yellow.

11 (12). Wings produced. Upf spot in 4 absent or just traceable ; apical spots absent or a dot in 6 ; obscure spot in 1, which unf is prominent and suffused. Below dark golden brown. Tegumen ending in 4 points.

*auroclilata*, Elwes. (43). The Yellow Fringed Swift. Sikkim to Manipur. R.

12 (11). Wings broader. Upf spots small, but the spot in 4 and the apical spots 6-8 prominent ; no spot in 1 upf or unf. Unh dark brown, overlaid ochreous brown scales. Tegumen rounded at top.

*chindroa*, nov. (38). The Abor Swift. Chindro Valley, Abor Valley (3 ♂, see *B.N.H.S. Journal* vol. xxiii, p. 546).

## I. 115. Baoris.—(contd.)

13 (11b). Above cilia greyish; dark brown, apex F broadly paler. Unh dark purple brown overlaid dark ochreous scales; apex unf markedly paler brown. Upf spot in 1 absent or just traceable, prominent in ♀; unf always a spot in 1.

*cormasa*, Hew. (38-40). The Full Stop Swift. Sikkim to Burma, Siam, Malay Peninsula and Islands. R. (= *connasa* Swin. and Fruh, in error; *dravida*, Mab.; *moolata*, M.).

14a (9d). Upf no spots in cell.

14b (16). Unh uniformly overlaid ochreous or greenish scales.

14 (15). Unh overlaid dark ochreous scales. ♂ upf no spot in 1 (rarely just traceable); present in ♀.

α. Large and dark. ♂ unf no spot in 1 or just traceable. ♀ unh no spots. Tegumen top horns insignificant.

*kumara lanka*, nov. (42-46). The Blank Swift. Ceylon. NR.

β. Paler. Unf pale diffused spot 1, sometimes traceable upf. Tegumen top horns short, but conspicuous. ♀ unh usually a spot in 2 and sometimes in 3.

*kumara kumara*, M. (39-44). S. India to N. Kanara. NR.

γ. Similar but rather darker. Tegumen top horns long, divergent.

*kumara moorei*, nov. (39-44). Sikkim to Dawns. R.

δ. Smaller, darker; spots on F much yellower; upf no spot in 1 and usually not traceable unf. Tegumen lobe tips and horns equal, prominent; horns not so long as in *moorei*.

*kumara malaya*, nov. (36-40). Mergui, Malay Peninsula. NR. Java (Elwes and Fruh). Borneo (Elwes).

15 (14). Uph overlaid greenish scales. Wings more pointed, ♂ upf always a prominent spot in 1.

α. Large and darker. Unh greenish scales sparse. ♂ upf usually a second spot in 1.

*philippina seriata*, M. (40-44). The Philippine Swift. Ceylon. NR.

β. Smaller and paler. Unh greenish scales often dense.

\* *philippina philippina*, HS. (39-42). S. India, R. Sikkim, Burma. VR. Malay Peninsula, Sumatra, Borneo, Philippines. (? races are *larika*, Pag, Amboina, Moluccas; *mehavagga*, Fruh., Celebes; *subfenestrata*, Rober. Key Is.)

16 (14b). Unh dark brown with a broad purple white central area from dorsum to costa, broken in 1; unf traces of similar colour on the costa. Upf and unf in ♂ ♀ no spot in 1.

*tulsi*, DeN. (40-48). The Purple Swift. Sikkim to Karens. NR. Java. (= *jolanda*), (Plotz).

17a (9c) Unh and often uph with prominent pale spots. Upf always prominent cell spots.

**Conjuncta Group.**

17b (19a). Upf the spot in 2 with its inner edge in line with the outer edge of the spot in the cell or still nearer the termen; always prominent lower and often small upper spot in 1; cell spots separate or conjoined. Above dark brown, basally clothed dark ochreous hairs. Below dark brown overlaid dark ochreous scales. Unh spotting variable up to a maximum of a spot in cell and a discal series 2-5 more or less equal.

17 (18). Upf only prominent elongated spot in 4. Spots white.

\* *assamensis*, WM. (50-60). The Great Swift. Central Provinces, Ganjam, Mussoorie to S. Burma, Formosa, S. China, Malay Peninsula. NR. (= *alice*, Plotz.).

18 (17) Uph small round spots in 3 and 4 and sometimes 2; frequently more. Upf spots yellow.

α. Darker. Unh spots comparatively large, complete, and prominent.

\* *conjuncta narooa*, M. (45-52). The Conjoined Swift. Ceylon, S. India. R.

β. Paler. Uph spots small and often incomplete.

*conjuncta conjuncta*, HS. Dun to Burma, Andamans, Nicobars, R. S. China, Annam, Malay Peninsular and Islands, Philippines, Lombok, Banka, Timor, Sumbawa. (= *javana*, Mab. Races are *beraka*, Plotz, Celebes; *stictica*, Fruh., Moluccas. *laraca*, Swin., is probably referable to *conjuncta*; it occurs on Woodlark, Dampier and Vulcan Islands and N. Australia).

1. 115. *Baoris*.—(contd.)

19a (17b). Upf spot in 2 immediately under the cell spot.

19b (21). Unf cell spots completely conjoined and a prominent spot in 1 against v1, spots large. Above dark brown, basally clothed ochreous or greenish hairs. Unh overlaid dark ochreous scales. Uph 3 prominent discal spots, of which the double spot in 4-5 is largest and spot in 3 smallest (may be absent); third spot in 9.

19 (20). Hyaline spots bright yellow; cilia bright yellow; base and dorsum F and dorsal  $\frac{1}{2}$  H clothed ochreous hairs. F spots larger; inner edge of spot in 3 nearly touching the outer edge of the spot in 2; spot on 1 elongate oval. Unh dark ochreous, veins obscurely black. Tegumen with 4 horns, lower and outer pair stout and divergent; inner and upper pair slender and nearly parallel.

\* *eltola*, Hew. (35-45). The Yellow Spot Swift. Mussoorie to Karens. NR.

20 (19). Hyaline spots white or pale yellow; cilia nearly white; bases clothed greenish hairs. F spots smaller, inner edge of spot in 3 separated by its width from the inner edge of the spot in 2; spot in 1 pyramidal. Unh greenish ochreous, veins not dark. Tegumen ending in a blunt tip, quite different to *eltola*.

$\alpha$ . Larger. Wings more produced. Hyaline spots pale yellow.

*discreta himalaya*, nov. (35-42) The Himalayan Swift. Murree to Kumaon. NR.

$\beta$ . Smaller. Wings more rounded. Hyaline spots white.

*discreta discreta*, Elwes. (34-37). Sikkim to Dawnas.

21 (19b). Upf spots small, white, cell spots separate, no spot in 1. Above dark brown, no clothing of ochreous or greenish hairs and H unmarked. Below dark brown, costa and apex F and all H overlaid very sparse ochreous green scales. Unh a discal row of 5 small white spots 2-6, in ♀ only in 2 and 6.

*minuta*, nov. (26-30). The Baby Swift. 2 ♂ Perak, JOR, Camp, 2,000 feet, August 1922. 1 ♀ Kanbauk, Tavoy, April 1924.

22a (9b). Antennæ short, shorter than v12.

22 (26a). Upf spot in 2 placed well back so as to be under the cell spot or at least so that its inner edge is in line with the outer edge of the 2 cell spots (♀ *contigua* aberrant, but distinguished by the conjoined cell spot).

**Pellucida Group.**

22c (25). Unh normally with discal row 2-6 and sometimes obscure spot end cell; at least spots in 4 and 5 present.

22d (24). Upf always a spot in 1.

22 (23). Upf cell spots separate. Uph a complete series. Above bases clothed dark greenish hairs. Unh overlaid greenish ochreous scales. Wings broad.

*pellucida*, Murray. (40). The Pellucid Swift. Japan and China (= *quinquepuncta*, Mab.).

23 (22). Upf discal spots conjoined. Uph and unh very variable, complete series may be present or only spots in 4 and 5. Above brown, overlaid ochreous hairs. Below overlaid ochreous brown scales. Wings more pointed. H v7 opposite v2.

\* *contigua*, Mab. (36-42). The Contiguous Swift. S. India. Kumaon to Burma. China, Formosa, Siam, Tonkin, Malay Peninsula and Islands, Bali, Lombok, Sumbawa, Celebes. (= *loona*, M. and *scortea*, Mab.)

24 (22d). Upf no spot in 1 or upper cell spot; spots in 2, 3 and 4 elongated to bases of their interspaces. Uph discal spots in 2-5 elongate and prominent. Above brown, overlaid ochreous scales and all spots yellow; below similar, paler.

*analia* Semp. (30) The Australian Swift. N. Australia. (= *fulgidus*, Miskin and *sigida*, Mab.)

25 (22c). Unh only spots in 2 and 3 of which that in 3 appears above. Upf spot in 4 absent and spot in 1 small; apical dots in 6 or 6 and 7; cell spots separate. Above dark brown, heavily overlaid ochreous hairs. Below overlaid bright ochreous green scales, rendering spots unh difficult to see. Wings produced.

. 115. *Baoris*.—(contd.)

*bipunctata*, Elwes. (40-44). The Moluccan Swift Batjan, Moluccas. (= *sidata*, Fruh, Buru; ? *contigualis* Roth., New Guinea).

26a (22b). Upf spot in 2 not before the origin of v3 and well in front of the cell spots, if latter are present. Never with the yellow appearance of the last group.

**Guttatus Group.**

26b (31). Upf spots in 2, 3 and 4 equidistant and never a spot in 5.

26c (29a). Unh normally discal spots in 2 5 or 6 and at least spots in 4, 5 present. Upf no spot in 1.

26d (28). Uph unmarked Unh spot in cell against upper edge and discal series 2-6.

26 (27). Upf 2 prominent spots in cell. Above rather pale brown; below similar, more or less overlaid ochreous green scales. Unh spots white.

*jansonis*, But. (40). Janson's Swift. Japan, Corea.

27 (26.) Upf single upper spot in cell or none. Above dark brown and spots white. Unh dark ochreous and spots pale shining purple.

*coerulescens*, Mab. (44). The Bluespot Swift. W. China.

28 (26d). Uph marked as unh. Upf no spots in cell (very rarely 2 are traceable). Above dark brown. Below apex and costa F and all H densely overlaid pale greenish scales. Unh normally only spots in 2-5, but occasionally a spot in 6 and in cell are traceable.

α. Large. Uph discal spots in a straight decreasing row

\* *guttatus guttatus*, Brem (34-40). The Straight Swift. Chitral to Assam, Hills 2-9,000 feet. China and Japan. C. (= *fortunet*, Fd.; *mangala*, M. and *cinnara*, Wall, Formosa).

β. Small. Uph and unh spotting very variable, discal row may be as in *guttatus* or curved and irregular.

*guttatus bada*, M. (32-36). Ceylon, India, Burma, C. China, Hainan, Formosa, Tonkin, Siam, Malay Peninsula and Islands, Philippines, Celebes, N. Australia. (= *philino*, Mosch; *haga*, *sifa*, *intermedia*, *nondoa* and *kolantus*, Plotz; *quinigera*, M.; *apostata*, Snell; *philotas*, DeN.)

29a (25c). Unh no spots in 4 and 5. Below apex and costa F and all H more or less overlaid pale greenish ochreous scales.

29 (30). Unh with a broad pale central fascia, caused by the greenish ochreous scales being rather denser there; normally decreasing white spots in 2 and 3, which do not appear uph. Upf 2 prominent cell spots; ♂ without, ♀ with spot in 1, present unf. Above brown, bases and most of H clothed obscure greenish hairs.

*canaraica*, M. (42-44). The Kanara Swift. S. India. R. (= *flexilis*, Swin.).

30 (29). Unh uniformly overlaid dense greenish ochreous scales. Very variable. Upf cell spots present or absent, always a spot in 1. Unh usually white spots in 2, 3 and 6; usually the spot in 3 appears upf.

α. Generally paler.

*zelleri zelleri*, Led. (30-36). The Rice Swift. Syria, N. Africa.

β. Generally darker.

\* *zelleri colaca*, M. Ceylon, India, Burma, Andamans, Nicobars, C. Formosa, Hainan, Malay Peninsula, and Islands, Philippines, Moluccas, N. Australia (= *cingala* and *hainana*, M.; *saturata*, WM. and DeN.; *distinctus*, Holland; *saruna*, *daendali* and *urejus*, Plotz & ? *ogasawarensis*, Matsumura, Bonin Is.).

31 (26b). Upf spot in 3 nearer spot in 2 than spot in 4, usually a spot in 5; only an upper spot in cell, which may rarely be absent. Above rather pale brown. Below apex and costa F and all H closely overlaid pale greenish ochreous scales. Unh small white spots in 2-6, those in 4 and 5 often absent; these spots appear uph more or less obscurely.

α. Upf no spot in 1.

*bevani thyone*, Leech. (30-36). Bevan's swift. C and W. China, Formosa.

β. Upf ♀ with a spot in 1; in ♂ present or absent.

\* *bevani bevani*, M. Ceylon, India, Burma, Andamans, Nicobars, C. Malay Peninsula and Islands, Philippines. (= *vaika*, Plotz.) (I have been unable to place the following; — *repetita*, But. New Lauenburg; *albiclavata*, But., New Pomerania and Georgia; *cretura*, Plotz, Celebes; *unicolor*, Dist., Malacca; *yanuca*, Fruh., Formosa; *palawanica*, ? figured in Seitz; *impar*, Mab Australia or Oceania).

**I. 116. *Gegenes*. (Plate 32.) The Dingy Swift.**

Above very dark to very pale brown in desert areas. ♂ normally unmarked above, but in pale specimens the spots from below may show through; in ♀ upf the spots from below always show through. Cilia dusky grey. Below costa and apex F and all H clothed grey scales. Unf in ♀ complete row of discal whitish spots, 2 in 1 (upper small and against outer edge or lower spot), in 2 and 3, small in 4 and 5, apical 6-8; in ♂ the spots are reduced and the spot in 1 is rarely traceable. Unh a discal row of obscure small grey white discal spots in 1-5 and a spot in 6 further from termen.

\* *nostradamus*, Fab. (28-35). Baluchistan, Sind, Punjab, Chitral to Kumaon. NR. S. Europe, N. Africa, W and C. Asia. (= *pygmaeus*, Auct in error; *pumilio*, Hoff; *lefebvrei*, Ramb.; *karsana*, M.,—the desert form).

**I. 117. *Eogenes*. The Torpedo. (Plate 32).**

Above brown, cilia grey; semi-hyaline spots on F only, double spot in cell, discal row pointing to apex, consisting of double spot in 1, in 2 and 3 (coalesced in ♀), small dots in 4 and 5 (often absent), conjoined apical spots in 6-8. Below brown, apex F and all H overlaid grey scales leaving on H obscure pale centred dark spots in 1, 2, 3 and 5. Unf the scales on the basal  $\frac{1}{4}$  erect, rough looking.

\* *alcides*, HS. (38-44). Chitral, NR. Asia Minor, Armenia, Buchara, Karategin. (= *ahrimani*, Christoph.)

(The end.)